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ABSTRACT

This study examined the relationship between reading comprehension and reading vocabulary and five dimensions of library anxiety (i.e., barriers with staff, affective barriers, comfort with the library, knowledge of the library, and mechanical barriers). Participants were 45 African-American graduate students from various disciplines who were administered the Library Anxiety Scale and the Nelson-Denny Reading Test. A canonical correlation analysis revealed that reading comprehension and reading vocabulary were related statistically significant to barriers with staff, comfort with the library, and knowledge of the library. Results indicate that for African-America female graduate students, reading ability may play an important role in the library context. Moreover, the fact that reading comprehension and reading vocabulary scores predict anxiety stemming from knowledge of the library in the opposite direction to the anxiety induced by affective barriers and comfort with the library suggests that poor reading ability can serve both as a risk factor and a protective factor with respect to library anxiety. (Contains 60 references.) (Author/MES)

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The Relationship between Library Anxiety and Reading Ability

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Abstract

Because reading is the key activity undertaken by library users and because the main purpose of libraries is to serve as an avenue for obtaining a multitude of text in various forms, it is likely that students with the poorest reading ability are the most uncomfortable in a library research setting. Yet, surprisingly, no research exists investigating the relationship between levels of library anxiety and reading ability. This was the purpose of the present inquiry. Specifically, the current study examined the relationship between reading comprehension and reading vocabulary and five dimensions of library anxiety (i.e., *barriers with staff*, *affective barriers*, *comfort with the library*, *knowledge of the library*, and *mechanical barriers*). Participants were 45 African-American graduate students from various disciplines who were administered the Library Anxiety Scale and the Nelson-Denny Reading Test. A canonical correlation analysis (R_c = 0.39) revealed that reading comprehension and reading vocabulary were related statistically significant to barriers with staff, comfort with the library, and knowledge of the library. Implications are discussed.

The Relationship between Library Anxiety and Reading Ability

Academic libraries of today provide users with a myriad of information choices. Indeed, academic libraries have evolved to the extent that for students to be able to use libraries successfully, they should be able "to navigate, find, and use information to answer questions and resolve problems in an environment with ever-changing constellations and expectations, in a world burdened with an explosive amount of information" (Owusu-Ansah, 2001, p. 282). Although advances in information technology has reduced the tedium of searching for information, other challenges now confront library users, as they are faced with the task of using the library in a manner never before required of them (Herrington, 1998).

As a result of these challenges, for many college students, the academic library represents an overwhelming experience (Jiao & Onwuegbuzie, 1999b; Mellon, 1986, 1988). The feelings of information overload often lead to worry and emotionality (Egan, 1992; Westbrook & Dedecker, 1993). Mellon (1986) has characterized this worry, fear, and uneasiness experienced by students as library anxiety. According to Onwuegbuzie, Jiao, and Bostick (in press), library anxiety can be defined as a negative experience characterized by excessive worry, self-defeating thoughts, fear, tension, and physiological arousal that arises during one or more of the following three stages of the library-task cycle: library preparation, library use, and library reflection. Library anxiety appears to be among the most prevalent forms of academic-related anxiety (Onwuegbuzie et al., in press), with between 75% to 85% of undergraduate students experiencing some form of library anxiety (Mellon, 1986).

Library-anxious students typically exhibit many avoidance behaviors such as refraining from asking for help (Kuhlthau, 1991), procrastinating over undertaking a library task (Onwuegbuzie & Jiao, 2000), or giving up their library search before reaching their goals (Jiao & Onwuegbuzie, 1997, 1999b). In fact, students with high levels of library anxiety are approximately 2.5 times less likely to utilize the library than are their less-anxious counterparts (Onwuegbuzie et al., in press). Even more disturbingly, high levels of library anxiety can be debilitating for students, and can even affect academic performance (Jiao & Onwuegbuzie, 2002; Onwuegbuzie, 1997).

Because of the debilitative nature of library anxiety, it is important that as many antecedents of this phenomenon as possible are identified, so that interventions can be designed. To date, 28 research articles have been published in which one or more predictors of library anxiety have been determined (Onwuegbuzie et al., in press). According to Onwuegbuzie et al. (in press), these factors can be classified as representing dispositional, environmental, or situational antecedents. Dispositional antecedents refer to factors that a library user brings to the setting. These include self-esteem (Mellon, 1986, 1988; Jiao & Onwuegbuzie, 1999b), perfectionism (Jiao & Onwuegbuzie, 1998), hope (Onwuegbuzie & Jiao, 1998b), and social interdependence (Jiao & Onwuegbuzie, 2002). Environmental antecedents pertain to demographic factors that place a user at risk for library anxiety. These include gender, age, native language, employment status, and year of study (Bostick, 1992; Jiao, Onwuegbuzie, & Lichtenstein, 1996; Liu & Redfern, 1997; Mech & Brooks, 1995; Shoham & Mizrachi, 2001). Finally, situational antecedents refer to factors that are in the immediate

environment which surround the stimulus. These include the size of the library (Mellon, 1986, 1988) and attitudes towards the educational use of the Internet (Veal & Collins, 2002). Although much progress has been made in understanding the antecedents of library anxiety, as admonished by Onwuegbuzie et al. (in press), much more research is needed here.

Over the past several years, academic libraries have undergone significant technological advances (Allison, McNeil, & Swanson, 2000). In particular, graphical user interfaces and access to the Internet abound in libraries. However, as sophisticated as these delivery systems are, the overall goals of libraries remain the same, namely, to promote learning and to ensure access to high-quality and accurate information (Allison et al., 2000). Moreover, whatever the delivery form, the printed word remains the major product provided by libraries to its patrons. Because the main purpose of libraries is to serve as an avenue for obtaining a multitude of text in various forms, and because reading is the key activity undertaken by library users, it is likely that students with the poorest reading skills are the most uncomfortable in a library research setting. Indeed, reading ability has been found to predict achievement at both the undergraduate (Du Boulay, 1999; Van Lanen, Lockie, & McGannon, 2000; Wood, 1982) and graduate (Collins & Onwuegbuzie, 2002; Onwuegbuzie, Slate, & Schwartz, 2001; Pritchard, Romeo, & Muller, 1999; Zhu, 1999) levels.

Reading ability can be defined as establishing meaning from the active interaction of the reader, the text, and the reading context (e.g., reading academic libraries vs. recreational reading) that results in the acquisition or consolidation of

knowledge, facts, information, wisdom, and/or experience (Anderson & Pearson, 1984; Mason, 1984; Paris, 1987; Seminoff, Wixson, & Peters, 1984). Because poor reading ability hinders comprehension of text information, impedes the successful integration of newly acquired information into the reader's pre-existing schema (Mason, 1984), and prevents students from integrating and evaluating ideas, and maintaining effective metacognitive awareness (Baker, 1985), it is likely that students with poor reading ability are most at risk for high levels of library anxiety. Indeed, these deficits probably threaten students' ability to negotiate one or more of the six stages of the information search process conceptualized by Kuhlthau (Kuhlthau, 1983, 1985, 1987, 1988a, 1988b, 1989, 1991, 1993, 1994; Kuhlthau, Turock, George, & Belvin, 1990), namely, task initiation, topic selection, prefocus exploration, focus formulation, information collection, and search closure.

During the task initiation stage, the goal is to identify the need for information. Students at this stage should contemplate the problem, understand the task, and link the problem to existing knowledge and experience. Anxiety levels typically increase at this stage when an individual first becomes aware of his/her lack of knowledge, awareness, or understanding (Kutlhau, 1988a). Awareness of poor reading ability might further increase anxiety levels.

The second stage of the library search process is topic selection. During this phase, the goal is to identify and to select the overall topic area to be researched. Students at this stage often undertake an initial, informal search of the information available, and peruse for a synopsis of alternative topics. Feelings of anxiety can be

expected to decrease after a selection has been made. However, these feelings are elevated if selection is delayed or postponed, and may continue to increase until the selection is made (Kuhlthau, 1988a). It is possible that poor reading ability affects a student's ability to make a selection, thereby rendering reading ability as a possible antecedent of library anxiety at this stage.

In the prefocus exploration stage, the individual's task is to research information on the general topic acquired in the previous stage in order to maximize her/his understanding. Further, the student's goal is to locate information about a general topic, to read in order to expand existing knowledge, and to link new information to existing knowledge. Clearly, the ability to comprehend what one has read previously affects a student's capacity to integrate old and new information. Thus, students with poor reading ability likely have difficulty at this stage, and thus are more at risk for experiencing frustration and ego-threat, resulting in confusion, uncertainty, and, most importantly, anxiety. Interestingly, according to Kuhlthau (1988a), prefocus exploration stage often is the most anxiety-producing step in the process. Using strategies that attempt to secure a premature closure, as poor readers may be more apt to do, culminates in elevated levels of anxiety, and may even lead some library users to abandon the search entirely (Kuhlthau, 1988a).

In the focus formulation step, the fourth stage of the information search process, the student attempts to develop a focus from the information that emerges in the previous stage(s). Thoughts involve identifying and selecting ideas and themes contained in the information in order to obtain a focused perspective of the topic. It is likely that reading

ability (e.g., the ability to comprehend and to assimilate information) is crucial here. Kuhlthau (1993) contends that focus formulation represents a turning point in the information search process because if the entire research process is completed without a clear and organized focus, the paper that emerges will lack clarity and coherence, and the new mental constructs will fail to emanate. Such an outcome likely culminates in heightened library anxiety levels at the library reflection stage (Onwuegbuzie et al., in press).

In the information collection stage (i.e., the fifth stage), the quality of the interaction between the library user and the information system should be maximized. At this phase, the goal is to collect information relevant to the focused topic. A major goal here is to select information pertinent to the focused perspective of the topic and to take clear and comprehensive notes on the focused information, as opposed to taking notes on general information that is no longer relevant after the formulation stage. If the library user at this stage has a clear sense of direction and appropriate focus, he/she will be in a position to request relevant, focused information from library staff and systems that allow comprehensive searches of all accessible resources. In turn, anxiety levels will decrease (Kuhlthau, 1993). On the other hand, lack of direction and focus lead to disorganization, frustration, and, consequently, elevated anxiety levels. It is probable that reading ability can play an important role here.

The goal in search closure stage, the final stage of the library search process, is to terminate the search and to prepare to present or to use the findings. At this stage, the student needs to organize a synthesis of the topic and evaluate the comprehensiveness

and completeness of the information available (Kuhlthau, 1991). Students with poor reading ability likely are at a disadvantage here. Further, the student's information search should be conducted at this stage such that the amount of relevant information extracted decreases, whereas the amount of redundant information increases. The end of the search is characterized by feelings of relief and substantial anxiety decrement if the search has been successful and feelings of elevated anxiety levels if the search has not been effective (Kuhlthau, 1991), thereby possibly linking reading ability to library anxiety at this stage.

The above discussion implicates reading ability as a potential situational antecedent of library anxiety. Yet, surprisingly, no research exists investigating the relationship between levels of reading ability and library anxiety. This was the purpose of the present inquiry. Specifically, the current study examined the relationship between reading comprehension and reading vocabulary and five dimensions of library anxiety (i.e., barriers with staff, affective barriers, comfort with the library, knowledge of the library, and mechanical barriers).

Method

Participants

Participants were 45 African-American graduate students enrolled in counseling psychology, school psychology, or educational psychology programs at a Historically Black College and University (HBCU) in the eastern United States. All participants were enrolled in a quantitative research methodology course in the areas of statistics or measurement. In order to participate in the study, students were required to sign an

informed consent document that was given during the first class session of the semester. For participating in the study, students received percentage points that were applied to their final course average. No student declined to participate. The majority of the sample was female (84.4%). Ages of the participants ranged from 22 to 62 (M = 29.07, SD = 10.62).

Instruments and Procedure

Participants were administered the Library Anxiety Scale (LAS) and the Nelson-Denny Reading Test (NDRT). The LAS, developed by Bostick (1992), is a 43-item, 5-point Likert-type measure that assesses levels of library anxiety experienced by users. The LAS contains the following five subscales: *barriers with staff*, *affective barriers*, *comfort with the library*, *knowledge of the library*, and *mechanical barriers*. *Barriers with staff* refer to users' beliefs that librarians are intimidating, overwhelming, unapproachable, and inaccessible. Moreover, librarians are perceived as being too busy to provide students help in conducting a library task and that librarians have duties that are much more important than helping them (Jiao et al., 1996). *Affective barriers* pertain to students' feelings of inadequacy while performing or attempting to perform a library task. These feelings of inadequacy are heightened by the assumption that other library users are more adept than they are in using the library (Mellon, 1986). *Comfort with the library* refers to how comfortable, safe, secure, welcoming, and non-threatening users perceive the library to be. *Knowledge of the library* indicates the extent to which students believe they are familiar with the library. Finally, *mechanical barriers* pertain to anxieties that arise when students use mechanical library equipment, including

computers, computer printers, and photocopy machines. A high score on any subscale represents high anxiety in this area. Jiao and Onwuegbuzie (1997) reported score reliability, as measured by coefficient alpha, for each subscale as follows: .90 (barriers with staff), .80 (affective barriers), .66 (comfort with the library), .62 (knowledge of the library), and .60 (mechanical barriers). For the present study, the subscales generated scores that had a classical theory alpha reliability coefficient of .93 (95% confidence interval [CI] = .90, .96) for barriers with staff, .89 (95% CI = .84, .93) for affective barriers, .71 (95% CI = .56, .81) for comfort with the library, .62 (95% CI = .41 .77) for knowledge of the library, and .51 (95% CI = .20, .71) for mechanical barriers.

The Nelson-Denny Reading Test (NDRT) (Form G) was administered in this investigation to measure reading vocabulary and reading comprehension. This instrument is a 118-item test divided into two subtests, Vocabulary, which consists of 80 items, and Comprehension, which consists of 38 items and seven reading passages (Brown, Fishco, & Hanna, 1993). Each item on the NDRT represents a five-choice multiple-choice format. The NDRT assesses reading vocabulary, reading comprehension, and the reading rate of test takers. However, only reading comprehension and reading vocabulary were of interest in this study. This instrument was selected because of its widespread use among researchers, adequate score reliability and validity that have been reported consistently in the literature, and the fact that normative data are available on very large samples of high school and undergraduate students. For the present investigation, score reliability, as measured by KR-20, was .92 (95% CI = .88, .95) for the reading vocabulary test and .80 (95% CI =

.71, .88) for the reading comprehension test.

Data Analysis

The major statistical procedure used in this study involved a canonical correlation analysis. This form of analysis was employed to identify which reading ability variables (i.e., reading comprehension and reading vocabulary), representing the independent multivariate profile, if any, are related simultaneously to the five subscales of the library anxiety scale (i.e., dependent multivariate set). The number of canonical functions (i.e., factors) that are yielded for a given data set is equal to the number of variables in the smaller of the two variable sets. Because two reading ability subscales and five library anxiety dimensions were involved, two canonical functions were generated.

Results

Means and standard deviations corresponding to scores on the subscales of the LAS and NDRT are presented in Table 1. With respect to the reading test scores, a series of independent samples *t*-tests revealed that the present sample obtained statistically significantly higher ($t = 1.62$ $p < .05$) scores on the reading comprehension portion of the NDRT than did a normative sample of 5,000 undergraduate students from 38 institutions studied by Brown et al. (1993) ($M = 61.60$, $SD = 11.94$). The effect size associated with this difference was .24 (Hedges & Olkin's [1985] *z*-based 95% Confidence Interval [CI] = .00, .53), which, using Cohen's (1988) criteria, was small to moderate. On the other hand, no statistically significant difference ($t = -0.16$, $p > .05$) was found between the current sample's reading vocabulary scores and those

pertaining to the normative undergraduate sample (M = 64.52, SD = 11.46).

The reading test scores of the present sample also were compared to another African-American sample, containing 77 graduate students (Mayes, Arthur, Johnson, Robinson, Ashe, & Onwuegbuzie, 2002). No statistically significant difference (t = -0.33, $p > .05$) in reading comprehensive scores was found between the study participants and those of Mayes et al. (2002) (M = 65.02, SD = 8.20). Similarly, no statistically significant difference (t = -0.39, $p > .05$) in reading vocabulary scores emerged between the current sample members and those of Mayes et al. (2002) (M = 65.00, SD = 10.19).

Finally, reading performance levels for the existing group were compared to Onwuegbuzie and Collins' (2002) sample of 59 white graduate students who were administered the NDRT. Findings revealed that the former attained statistically significantly lower (t = -3.88, $p < .001$) reading comprehension scores than did the white comparison group (M = 70.00, SD = 5.28). The effect size associated with this difference was .77 (95% CI = .37, 1.17), which, using Cohen's (1988) criteria, was moderate to large. Similarly, the present group of African-American graduate students attained statistically significantly lower (t = -3.28, $p < .001$) reading vocabulary scores than did the white comparison group (M = 69.63, SD = 6.09). The effect size associated with this difference was .65 (95% CI = .25, 1.05), which, using Cohen's (1988) criteria, also was in the moderate-to-large range.

The canonical analysis revealed that the two canonical correlations combined were statistically significant (F [10, 58] = 1.99, $p < .05$). However, when the first canonical root was excluded, the remaining canonical root was not statistically

significant (F [4, 30] = 0.69, $p > .05$). This suggests that the first canonical function was statistically significant, but the second canonical root was not statistically significant. However, because the calculated probabilities are sensitive to sample size, the educational (practical) significance of the obtained results also was assessed (Thompson, 1980). The educational significance of canonical correlations typically is evaluated by assessing its size (Thompson, 1980, 1984, 1988, 1990). The canonical correlation indicates how much variance the sets of weighted original variables share in common (Thompson, 1988). In the present investigation, the first canonical correlation (R_{c1} = .62) was practically significant, contributing 39.4% (i.e., R_{c1}^2) of the shared variance, respectively. The second canonical correlation only accounted for 8.50% of the variance. Consequently, only the first canonical correlation was interpreted.

Data pertaining to the first canonical root are presented in Table 2. This table provides both standardized function coefficients and structure coefficients (Onwuegbuzie & Daniel, in press). For the first canonical correlation, an examination of the standardized canonical function coefficients revealed that, using a cutoff correlation of 0.3 recommended by Lambert and Durand (1975) as an acceptable minimum loading value, both the reading vocabulary and reading comprehension subscales made important contributions to the reading ability set, with reading vocabulary making by far the largest contribution. With respect to the library anxiety set, comfort with the library and knowledge of the library made important contributions. The structure coefficients pertaining to the first canonical correlation revealed that both reading vocabulary and reading comprehension subscales were significant predictors, with reading vocabulary

making a very large contribution to the model. Also, barriers with staff, comfort with the library, and knowledge of the library made important contributions.

From Table 2, it can be seen from the structural coefficients that, of the library anxiety set, knowledge of the library and comfort with the library made similarly moderate contributions, explaining 21.8% and 21.3% of the variance, respectively. Barriers with staff made a relatively smaller contribution (9.0% explained). Interestingly, while reading comprehension and reading vocabulary were positively related to barriers with staff and comfort with the library, these variables were negatively related to knowledge of the library.

Discussion

The purpose of this study was to examine the extent to which reading ability predicts levels of library anxiety. Findings indicated a large relationship between these two sets of variables. A canonical correlation analysis revealed that reading comprehension and reading vocabulary simultaneously were significantly related to barriers with staff, comfort with the library, and knowledge of the library. Specifically, students who had the *lowest* reading comprehension and reading vocabulary scores tended to have the *highest* levels of library anxiety stemming from knowledge of the library, and the *lowest* levels of library anxiety associated with barriers with staff and comfort with the library. This relationship, which was found to be large, provides compelling evidence that reading ability is a predictor of library anxiety levels. Moreover, these results provide compelling evidence that reading ability is a situational antecedent of library anxiety.

Reading ability has been studied considerably at the elementary, middle, and high school level (Mayes et al., 2002). However, the reading skills of college students have received much less attention, likely because it is assumed that these students already possess adequate reading abilities (Collins & Onwuegbuzie, 2002). Graduate students have been the focus of even less research, with only a handful of studies (i.e., Collins & Onwuegbuzie, 2002; Onwuegbuzie et al., 2001; Pritchard et al., 1999; Zhu, 1999) being conducted in this area. Thus, the present findings pertaining to African-American graduate students have added to the scant body of literature on this population.

A particularly interesting aspect of the findings is that whereas low reading comprehension and reading vocabulary were predictors of high levels of library anxiety associated with knowledge of the library, these reading constructs predicted low levels of library anxiety associated with both mechanical barriers and comfort with the library. Although these two sets of results may appear contradictory, on closer examination, they have logical appeal. Knowledge of the library refers to how familiar with the library students believe themselves to be. A lack of familiarity tends to elevate levels of library anxiety, and, subsequently, to subsequent avoidance behaviors (Mellon, 1988, 1989). In particular, because libraries contain a "sea of books," it is likely that they serve as constant reminder to students with poor reading ability about their literacy inadequacies. As such, these students are likely to feel a threat to their egos while in the library, and thus avoid using the library as much as possible, leading to procrastination and further elevations in anxiety (Onwuegbuzie & Jiao, 2000). These

students also are likely to attribute any failures experienced in the library (e.g., inability to understand the contents of a book or an article found) to internal factors (i.e., lack of ability). The more such internal attributions are made by poor readers, the more future library tasks will be deemed to be ego-threatening rather than merely challenging (Schwarzer & Jerusalem, 1992), and the more likely they are to avoid libraries. This avoidance, in turn, will prevent them from maximizing their knowledge of the library, and subsequently increase their levels of library anxiety.

One might predict that students with the high reading comprehension and reading vocabulary scores would report the lowest levels of library anxiety associated with affective barriers and comfort with the library; however, these students reported the highest levels of anxiety associated with these barriers. One possible explanation for this unexpected finding is that graduate students with good reading skills, who are likely to enjoy reading in their favorite places (e.g., home), find the library a relatively inconvenient and stressful place for them to read. To the extent that this is the case, good readers might experience elevations in library anxiety (i.e., affective barriers and knowledge of the library) while reading in such a formal setting. Indeed, this finding is somewhat consistent with Onwuegbuzie and Jiao (1998a), who found that students who prefer to receive information via the visual mode tend to have high levels of library anxiety. In any case, more research is clearly needed to investigate further this positive relationship found between reading performance and library anxiety associated with affective barriers and comfort with the library. Further, researchers should seek to determine at what point during the six stages of the library search process (Kuhlthau,

1983, 1985, 1987, 1988a, 1988b, 1989, 1991, 1993, 1994; Kuhlthau et al., 1990) the link between reading ability and library anxiety is maximized. Qualitative techniques can play an important role here.

Several limitations of the present findings merit specific mention. Specifically, the results were obtained from a relatively small and homogeneous sample of African-American graduate students. Bearing in mind the fact that racial/ethnic differences have been found in reading performance among primary, secondary, and college-bound students (e.g., Diamond & Onwuegbuzie, 2001; Lee, 2002), it is not clear whether the multivariate relationship found in this study can be generalized to non African-American graduate students. Further, the fact that the present sample represents those enrolled at a HBCU indicates that they were among the highest-achieving African-American graduate students. Thus, it is not known whether the results are representative of African-American graduate students in general. Third, the fact that the present sample attained significantly lower levels of reading ability than did a comparison group of white graduate students in Collins and Onwuegbuzie's (2002) investigation calls into question how replicable the results may be across racial/ethnic lines. Fourth, because the present sample attained significantly higher reading comprehension and reading vocabulary scores than did the normative undergraduate participants in Brown et al.'s (1993) study, it is not justified to extrapolate the findings from graduates to undergraduates. Finally, the fact that participants were predominantly female poses another threat to the external validity of the results. As such, replications of the study are needed across various ethnic groups using larger samples that contain a greater

proportion of male students. This study also should be replicated on undergraduate students and even high school students.

Nevertheless, the current investigation indicates that for African-American female graduate students, at the very least, reading ability may play an important role in the library context. Moreover, the fact that reading comprehension and reading vocabulary scores predict anxiety stemming from knowledge of the library in the opposite direction to the anxiety induced by affective barriers and comfort with the library suggests that poor reading ability can serve both as a risk factor and a protective factor with respect to library anxiety. As such, reading comprehension and library anxiety appear to be inextricably linked. By unraveling this relationship, our understanding of the construct of library anxiety will be enhanced.

References

Allison, D., McNeil, B., & Swanson, S. (2000). Database selection. One size does not fit all. *College & Research Libraries, 61*, 56-63.

Anderson, R. C., & Pearson, P. D. (1984). A schema-theoretic view of basic processes in reading. In P. D. Pearson (Ed.), *Handbook of reading research* (pp. 255-293). New York: Longman.

Baker, L. (1985). Differences in the standards used by college students to evaluate their comprehension of expository prose. *Reading Research Quarterly,* 20, 297-313.

Bostick, S. L. (1992). The development and validation of the Library Anxiety Scale (Doctoral dissertation, Wayne State University, 1992). *Dissertation Abstracts International, 53-12*, Section A, 4116.

Brown, J. I., Fishco, V. V. & Hanna, G. (1993). *Nelson-Denny Reading Test: Manual for scoring and interpretation, Forms G and H.* Itasca, IL: Riverside Publishing.

Cohen, J. (1988). *Statistical power analysis for the behavioral sciences* (2nd ed.). Hillsdale, N.J.: Lawrence Erlbaum.

Collins, K. M. T., & Onwuegbuzie, A. J. (2002, April). *Relationship between reading ability and achievement in a graduate-level research methodology course.* Paper presented at the annual meeting of the American Educational Research Association, New Orleans, LA.

Diamond, P. J., & Onwuegbuzie, A. J. (2001). Factors associated with reading achievement and attitudes among elementary school-aged students. *Research*

in the Schools, 8, 1-11.

Du Boulay, D. (1999). Argument in reading: What does it involve and how can students become better critical readers? *Teaching in Higher Education, 4*, 147-162.

Egan, P. J. (1992). Bridging the gap between the student and the library. *College Teaching, 41*, 67-70.

Hedges, L. V., & Olkin, I. (1985). *Statistical methods for meta-analysis*. New York: Academic Press.

Herrington, V. J. (1998). Way beyond BI: A look to the future. *The Journal of Academic Librarianship, 24*, 381-386.

Jiao, Q. G., & Onwuegbuzie, A. J. (1997). Antecedents of library anxiety. *The Library Quarterly, 67*, 372-389.

Jiao, Q. G., & Onwuegbuzie, A. J. (1998). Perfectionism and library anxiety among graduate students. *Journal of Academic Librarianship, 24*, 365-371.

Jiao, Q. G., & Onwuegbuzie, A. J. (1999a). Self-perception and library anxiety: An empirical study. *Library Review, 48*, 140-147.

Jiao, Q. G., & Onwuegbuzie, A. J. (1999b). Is library anxiety important? *Library Review, 48, 278-282*

Jiao, Q. G., & Onwuegbuzie, A. J. (2002). Dimensions of library anxiety and social interdependence: Implications for library services. *Library Review, 51*, 71-78.

Jiao, Q. G., & Onwuegbuzie, A. J. (2002, November). *Anxiety-Expectation Mediation Model of library anxiety*. Paper presented at the annual meeting of the Mid-South Educational Research Association, Chattanooga, TN.

Jiao, Q. G., Onwuegbuzie, A. J., & Lichtenstein, A. (1996). Library anxiety: Characteristics of "at-risk" college students. *Library & Information Science Research, 18,* 151-163.

Kuhlthau, C. C. (1983). *The library research process: Case studies and interventions with high school seniors in advanced placement English classes using Kelly's theory of constructs.* Unpublished doctoral dissertation, The State University of New Jersey, Rutgers, NJ.

Kuhlthau, C. C. (1985). A process approach to library skills in instruction. *School Library Media Quarterly, 13,* 35-40.

Kuhlthau, C. C. (1987). An emerging theory of library instruction. *School Library Media Quarterly, 16,* 23-28.

Kuhlthau, C. C. (1988a). Developing a model of the library search process: Cognitive and affective aspects. *RQ, 28,* 232-242.

Kuhlthau, C. C. (1988b). Longitudinal case studies of the information search process of users in libraries. *Library & Information Science Research, 10,* 257-304.

Kuhlthau, C. C. (1989). The information search process of high-middle-low achieving high school seniors. *School Library Media Quarterly, 17,* 224-228.

Kuhlthau, C. C. (1991). Inside the search process: Information seeking from the user's perspective. *Journal of the American Society for Information Science, 42,* 361-371.

Kuhlthau, C. C. (1993). *Seeking meaning: A process approach to library and information services.* Norwood, NJ: Ablex Publishing Corporation.

Kuhlthau, C. C. (1994). Students and the information search process: Zones of

Intervention for librarians. In M. J. Voigt (Ed), *Advances in Librarianship, 18* (pp. 57-72). New York: Academic Press.

Kuhlthau, C. C., Turock, B. J., George, M.W., & Belvin, R. J. (1990). Validating a model of the search process: A comparison of academic, public and school library users. *Library & Information Science Research, 12,* 5-31.

Lambert, Z. V., & Durand, R. M. (1975). Some precautions in using canonical analysis. *Journal of Marketing Research, XII,* 468-475.

Lee, J. (2002). Racial and ethnic achievement gap trends: Reversing the progress toward equity? *Educational Researcher, 31*, 3-12.

Liu, M., & Redfern, B. (1997). Information seeking behavior of multicultural students: A case study at San Jose State University. *College & Research Libraries, 58*, 348-354.

Mason, J. M. (1984). A schema-theoretic view of the reading process as a basis for comprehension instruction. In G. G. Duffy, L. R. Rochler, & J. Mason (Eds.), *Comprehension instruction* (pp. 26-38). New York: Longman.

Mayes, E., Arthur, L., Johnson, J. Robinson, V., Ashe, S., & Onwuegbuzie, A. J. (2002). *Reading comprehension among African American graduate students*. Manuscript submitted for publication.

Mech, T. F., & Brooks, C. I. (1995). *Library anxiety among college students: An Exploratory study*. Paper presented at the 7th National Conference of the Association of College and Research Libraries, Pittsburgh, PA, March 30-April 2, 1995.

Mellon, C. A. (1986). Library anxiety: a grounded theory and its development. *College and Research Libraries* 47, 160-165.

Mellon, C A. (1988). Attitudes: the forgotten dimension in library instruction. *Library Journal, 113,* 137-139.

Onwuegbuzie, A. J. (1997). Writing a research proposal: The role of library anxiety, statistics anxiety, and composition anxiety. *Library & Information Science Research 19,* 5-33.

Onwuegbuzie, A. J., & Collins, K. M. T. (2002). Reading comprehension among graduate students. *Psychological Reports 90,* 879-82.

Onwuegbuzie, A. J., & Daniel, L. G. (in press). Typology of analytical and interpretational errors in quantitative and qualitative educational research. *Current Issues in Education.*

Onwuegbuzie, A. J., & Jiao, Q. G. (1998a). The relationship between library anxiety and learning styles among graduate students: Implications for library instructors. *Library & Information Science Research, 20,* 235-249.

Onwuegbuzie, A. J., & Jiao, Q. G. (1998b). I hope that I am not anxious about using the library: The relationship between hope and library anxiety among graduate students. *Florida Journal of Educational Research, 38,* 13-26.

Onwuegbuzie, A. J., & Jiao, Q. G. (2000). I'll go to the library tomorrow: The role of procrastination in Library anxiety. *College & Research Libraries, 61,* 45-54.

Onwuegbuzie, A. J., Jiao, Q. G., & Bostick, S. L. (in press). *Library anxiety: Theory, research, and applications.* Lanham, MD: Scarecrow Press.

Onwuegbuzie, A. J., Slate, J. R., & Schwartz, R. A. (2001). The role of study skills in graduate-level educational research courses. *Journal of Educational Research, 94, 238-246.*

Owusu-Ansah, E. K. (2001). The academic library in the enterprise of colleges and universities: Toward a new paradigm. *Journal of Academic Librarianship, 27,* 282-294.

Paris, S. (1987). Introduction to current issues in reading comprehension. *Educational Psychologist,* 22, 209-213.

Pritchard, R. E., Romeo, G. C., & Muller, S. A. B. (1999). Integrating reading strategies into the accounting curriculum. *College Student Journal, 33,* 77-81.

Schwarzer, R., & Jerusalem, M. (1992). Advances in anxiety theory: A cognitive process approach. In K. A. Hagtvet, & T. B. Johnsen (Eds.), *Advances in test anxiety research* (Vol. 7, pp. 2-31). Lisse, The Netherlands: Swets & Zeitlinger.

Seminoff, N., Wixson, K. K., & Peters, C. W. (1984). Reading redefined: A Michigan Reading Association position paper. *Michigan Reading Journal,* 17, 4-7.

Shoham, S., & Mizrachi, D. (2001). Library anxiety among undergraduates: A study of Israeli B.Ed. students. *Journal of Academic Librarianship, 27,* 305-311.

Thompson, B. (1980, April). *Canonical correlation: Recent extensions for modelling educational processes*. Paper presented at the annual meeting of the American Educational Research Association, Boston, MA.

Thompson, B. (1984). *Canonical correlation analysis: Uses and interpretations*. Beverly Hills, CA: Sage.

Thompson, B. (1988, April). *Canonical correlation analysis: An explanation with comments on correct practice.* Paper presented at the annual meeting of the American Educational Research Association, New Orleans, LA. (ERIC Document Reproduction Service No. ED 295 957)

Thompson, B. (1990). Finding a correction for the sampling error in multivariate measures of relationships: A Monte Carlo study. *Educational and Psychological Measurement, 50*, 15-31.

Van Lanen, R. J., Lockie, N. M., & McGannon, T. (2000). Predictors of nursing students' performance in a one-semester organic and biochemistry course. Journal of Chemical Education, 77, *767-770.*

Veal, R. E., & Collins, K. M. T. (2002, November). *Adult learners' attitudes toward the library and the Internet.* Paper presented at the annual meeting of the Mid-South Educational Research Association, Chattanooga, TN.

Westbrook, L., & DeDecker, S. (1993). Supporting user needs and skills to minimize library anxiety: Considerations for academic libraries. *The Reference Librarian, 40*, 43-51.

Wood, P. H. (1982) The Nelson-Denny Reading Test as a predictor of college freshman grades. *Educational and Psychological Measurement, 42*, 575.

Zhu, E. (1999). Hypermedia interface design: The effects of number of links and granularity of nodes. Journal of Educational Multimedia and Hypermedia, 8, 331-358.

Table 1

Means and Standard Deviations for Scores on the LAS and NDRT Reading Test Subscales

Subscales	Mean	*SD*
LAS Subscale:		
Barriers With Staff	34.97	10.87
Affective Barriers	29.29	9.18
Comfort With the Library	19.08	4.48
Knowledge of the Library	10.97	3.02
Mechanical Barriers	7.67	2.44
NDRT Reading Subscale:		
Reading Vocabulary	64.24	10.55
Reading Comprehension	64.49	9.08

Table 2

Canonical Solution for First Function

Variable	Standardized Coefficient	Structure Coefficient	Structure[2]
LAS Subscale			
Barriers With Staff	0.014	.300*	.090
Affective Barriers	0.144	.174	.030
Comfort With the Library	0.902*	.461*	.213
Knowledge of the Library	-1.113*	-.467*	.218
Mechanical Barriers	0.163	.216	.047
NDRT Reading Measure			
Reading Vocabulary	0.730*	.977*	.955
Reading Comprehension	0.325*	.880*	.774

*Loadings with effect sizes larger than .3 (Lambert & Durand, 1975)

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